

Attorney Docket No.: P10591US/8194-350
Serial No.: 09/464,830

REMARKS

Applicant appreciates the continued thorough examination of the present application as reflected in the third, nonfinal Official Action of April 24, 2003. Applicant also appreciates the withdrawal of the earlier rejection of Claims 1, 3, 19 and 21 based on U.S. Patent 5,214,391 to Serizawa et al. in view of U.S. Patent 6,177,906 to Petrus, and the continued indication that Claims 7 – 18 and 25 – 36 are allowable and that Claims 2, 4 – 6, 20 and 22 – 24 would be allowable if rewritten in independent form. As was the case in Applicant's response of May 15, 2003 to the second, nonfinal Official Action of April 24, 2003, it would be a simple matter to rewrite the objected-to claims in independent form and cancel the four rejected claims (Claims 1, 3, 19 and 21). However, upon careful analysis, Applicant respectfully submits that Claims 1, 3, 19 and 21 are not anticipated by the newly cited U.S. Patent 6,249,518 to Cui. Accordingly, Applicant respectfully requests reconsideration of the outstanding rejection for the reasons that will be described below.

In particular, Claim 1 recites:

1. A method of receiving a signal in the presence of noise and interference comprising the steps of:
demodulating the signal when a relationship between the signal and the noise and the interference meets a criterion; and
jointly demodulating the signal when the relationship between the signal and the noise and the interference does not meet the criterion. (Emphasis added.)

The new Official Action contends that Single Antenna – Co-Channel Interference Cancellation (SA-CCIC) demodulator of Cui is a joint demodulator. However, Applicant respectfully submits that Cui's SA-CCIC demodulator is not a joint demodulator. Joint demodulation is defined in the present application, for example, at page 1 line 6-9:

Joint demodulation is widely used to detect a desired signal from a received signal that includes an interfering signal as well. In joint demodulation, the desired signal and the interfering signal are both demodulated based on information concerning the desired signal and the interfering signal, so as to obtain a better estimate of the desired signal.

Page 1, lines 10-25 of the present application cites six references which extensively describe joint demodulation, as defined above.

Rather than using the present application's conventional definition of joint demodulation, the Official Action states that:

Joint demodulation can be defined, as stated in the specification (note 26th line on page 1 – 4th line on page 2) as a demodulator comprising

more complex operation than a conventional demodulator, and detecting desired signal from a received signal that includes an interfering signal.

However, this passage of the present application (page 1, line 26-page 2, line 4), does not define a joint demodulator but rather states:

Although joint demodulation can be highly effective in detecting a desired signal from a received signal that includes an interfering signal, joint demodulation may be more complex than standard or conventional demodulation, referred to herein simply as "demodulation", of a received signal. Accordingly, there continues to be a need to provide improved systems and methods for jointly demodulating a received signal in the presence of an interfering signal.

This passage clearly states that joint demodulation may be more complex than standard or conventional demodulation but does not define joint demodulation as any demodulator that is more complex than standard or conventional demodulation. Applicant respectfully submits that such a reading would contradict the conventional definition of joint demodulation as was defined at page 1, lines 6-9 of the present application, as described above.

Using the conventional definition of joint demodulation, Cui's SA-CCIC demodulator clearly is not a joint demodulator. For example, Cui's SA-CCIC demodulator is described in Cui's abstract as follows:

A demodulator, within a receiver attached to a single antenna, that cancels co-channel interference within a time division multiple access (TDMA) communication system is disclosed. The demodulator takes as input a series of received signals comprising an information signal and a co-channel interference signal, both using the $\pi/4$ -differential quadrature phase shift keying (DQPSK) modulation protocol. During a training period, in which the information signals corresponds to a known SYNC word, the demodulator estimates the fading coefficients corresponding to the information and interference signals. After the completion of the training period, the demodulator uses these estimates to generate accurate estimations for future information and interference signals corresponding to future data received signals. Therefore, the information signal has been essentially separated from the co-channel interference signal and can be demodulated with a lower bit error rate (BER) than previous demodulation techniques under these circumstances.

There is clearly no description or suggestion of a joint demodulator, wherein the desired signal and the interfering signal are both demodulated based on information concerning a desired signal and the interfering signal, so as to obtain a better estimate of the desired signal.

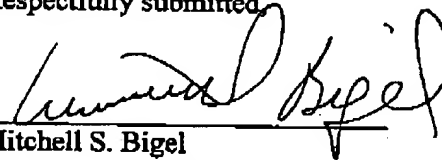
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Accordingly, Cui does not anticipate Claim 1 nor would it be obvious to modify Cui to provide a joint demodulator because there is no suggestion whatsoever in Cui to do so.

In view of the above, Applicant respectfully submits that a reasonable and conventional interpretation of the present application and of Cui clearly shows that Cui does not describe or suggest a joint demodulator, or the use of a joint demodulator as recited in Claim 1. For at least these reasons, Claim 1 is patentable over Cui. Claim 3 is patentable at least per the patentability of Claim 1 from which it depends. Claims 19 and 21 are system analogs of Claims 1 and 3, and are patentable for the same reasons that were described above.

In conclusion, Applicant again wishes to thank the Examiner for the continued thorough examination and for the continued indication that all but four of the claims are allowable. As shown above, however, these four claims are patentable over the newly cited reference. Accordingly, Applicant respectfully requests reconsideration of the outstanding rejections and allowance of the present application.

Respectfully submitted,



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